



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>6</sup> : <b>C12N 15/74, 15/68, 9/88, 9/48</b>		A1	(11) International Publication Number: <b>WO 99/54488</b>
			(43) International Publication Date: 28 October 1999 (28.10.99)
(21) International Application Number: PCT/DK99/00209 (22) International Filing Date: 14 April 1999 (14.04.99) (30) Priority Data: 0551/98      21 April 1998 (21.04.98)      DK 60/082,555      21 April 1998 (21.04.98)      US (71) Applicant (for all designated States except US): CHR. HANSEN A/S [DK/DK]; Bøge Allé 10-12, DK-2970 Hørsholm (DK). (72) Inventors; and (75) Inventors/Applicants (for US only): SØRENSEN, Kim, Ib [DK/DK]; Hvilebækvænge 66, DK-3520 Farum (DK). LARSEN, Rasmus [DK/DK]; Jagtvej 120, 3. vær 335, DK-2200 Copenhagen N (DK). JOHANSEN, Eric [CA/DK]; Gutfeldtsvej 9, DK-2970 Hørsholm (DK). (74) Agent: PLOUGMANN, VINGTOFT & PARTNERS A/S; Sankt Annae Plads 11, P.O. Box 3007, DK-1021 Copenhagen K (DK).		(81) Designated States: AE, AL, AM, AT, AT (Utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), EE, EE (Utility model), ES, FI, FI (Utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  Published With international search report.	

(54) Title: FOOD-GRADE CLONING VECTOR AND THEIR USE IN LACTIC ACID BACTERIA

## (57) Abstract

Novel food-grade cloning vectors comprising a nonsense mutation suppressor-encoding gene, which vector, when it is present in a lactic acid bacterial strain, permits such a strain to have an industrially appropriate growth rate and metabolic activity. The cloning vectors are useful when present in lactic acid bacteria used as starter cultures in the preparation of food or feed products, or a dairy flavour.

